State of Illinois
Bruce Rauner, Governor

Illinois Environmental Protection Agency
Lisa Bonnett, Director

TMDL Scoping Report Development for Lake Michigan (nearshore) Mercury and Polychlorinated Biphenyls

Background

Over the last 30 years, waters in Illinois have been monitored for chemical, biological, and physical conditions. In some cases, the condition of those rivers and lakes falls short of the need to support basic water quality use goals. These waters are deemed impaired since they cannot meet use expectations set for them under state and federal law. When this happens Total Maximum Daily Load (TMDL) reports are developed for impaired waters to determine the maximum amount of a pollutant a water body can receive and still meet water quality standards and support its designated uses. Designated uses include aquatic life, indigenous aquatic life, public and food processing water supply, primary contact (e.g., swimming, water skiing), secondary contact (e.g., boating, fishing), fish consumption, and aesthetic quality.

TMDLs are done in stages to allow for public involvement and input. TMDL development in Illinois begins with data compilation—water quality, point source discharge, precipitation, soils, geology, topography, and land use— within the specific watershed. The data are analyzed to characterize and understand the impaired waterbodies and contributing sources. Illinois Environmental Protection Agency (IEPA) then assesses the tools necessary to develop the TMDL. In most cases, computer models are used to calculate pollutant loads and link those loads to the water body condition. In the case of the mercury and polychlorinated biphenyl TMDLs, models will be used to link pollutant loads to fish tissue concentrations. A scoping report has been completed for the project watershed, and this report summarizes the available data, TMDL targets, and the recommended modeling approach.

The Illinois Lake Michigan Nearshore Impaired Segments

Lake Michigan beaches and their coastal waters are a highly valued societal and ecological resource. These waters are widely popular, highly used, and are monitored by Illinois EPA. There are 51 beach segments and 4 harbors along the Illinois Lake Michigan shoreline that are included on IEPA's impaired waters listing for mercury and PCBs, in addition to the Lake Michigan nearshore area extending 5 km from the coastline. For this TMDL, "shoreline segment" is used in place of "beach" because not all 51 segments are considered beaches as defined by the local management agencies. The maps accompanying this Fact Sheet show the location of the shoreline segments, the harbors and the nearshore open water segment. The impaired waterbody segments are shown in Figure 1, with additional detail shown in Figures 2 and 3.

Potential Pollutant Sources

Potential sources of mercury and polychlorinated biphenyls to the impaired segments include: hydrodynamic transport from the main body of Lake Michigan, atmospheric loading, MS4 stormwater loading, other NPDES-permitted point sources, flow reversals from the Chicago Area Waterways, and diffusion and/or resuspension from bed sediments.

Candidate TMDL Approaches

Based on the information compiled for the project study area, and a data gap assessment, three different approaches have been described and assessed for applicability for the Illinois Lake Michigan nearshore TMDLs. The three candidate approaches are, in order of increasing complexity: 1) Proportionality Approach; 2) Steady State Mass Balance Approach, and 3) Time Variable Approach. Based on a review of the available data and the contributing sources, IEPA and USEPA have recommended the proportionality approach for the mercury and PCB TMDLs.

Scoping Report Development

In support of TMDL development, a scoping report has been developed that describes the project study area, the available data and data gaps, applicable water quality criteria and recommended TMDL targets, candidate modeling approaches, potential sources and their magnitudes, and a recommended approach. The scoping report is available at: http://www.epa.state.il.us/water/tmdl/report-status.html.

For information on the assessment of Illinois waters, refer to the Integrated Report and 303(d) List at: http://www.epa.state.il.us/water/tmdl/303d-list.html.

For more information on the TMDL program in Illinois, refer to: http://www.epa.illinois.gov/topics/water-quality/watershed-management/tmdls/index.

If you have any questions, please contact Collin Stedman by phone at 217/782-3362 or email at: Collin.Stedman@Illinois.gov.

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Figure 1. Study Area and Impaired Segments

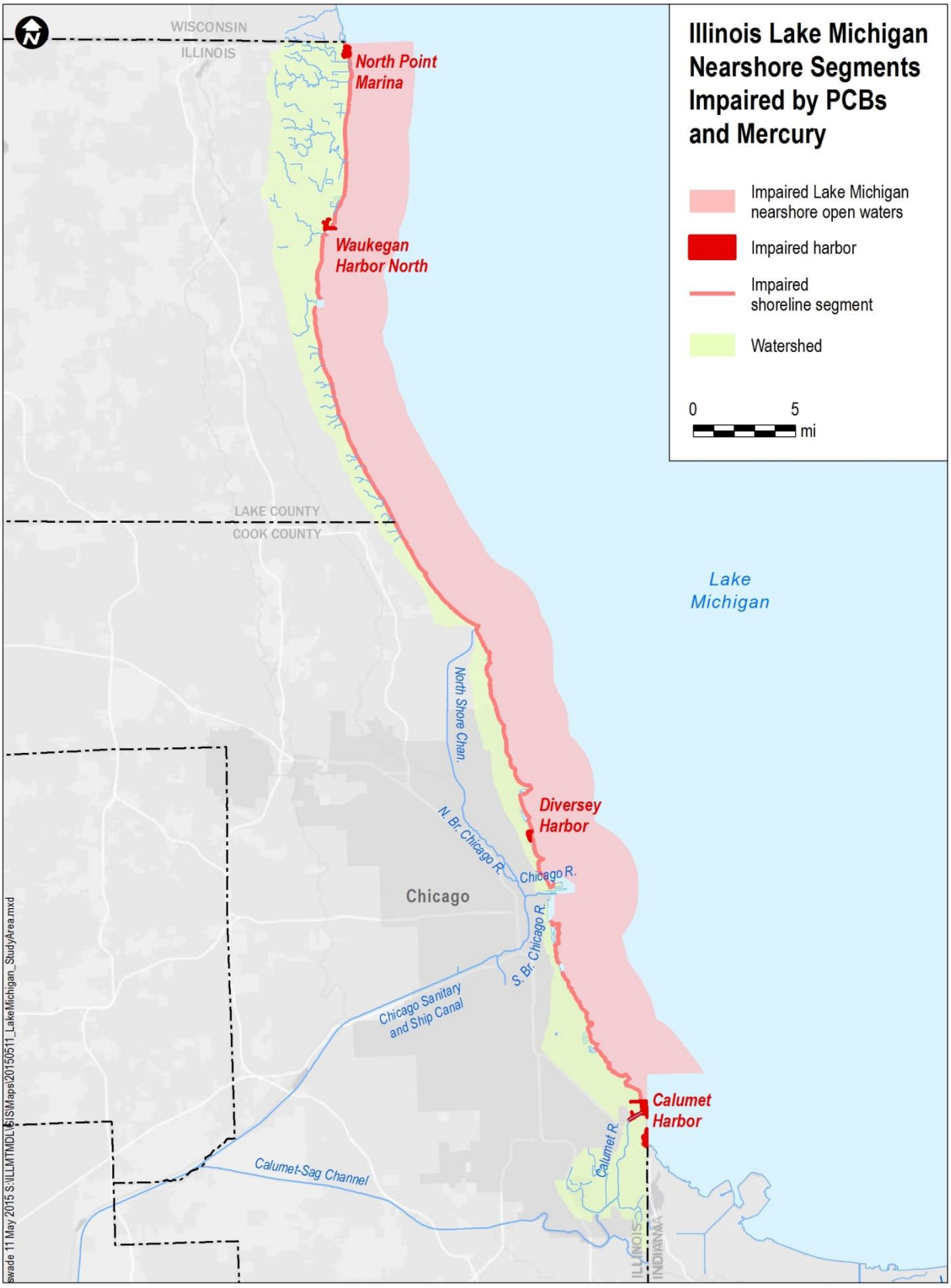


Figure 2. Impaired Harbors

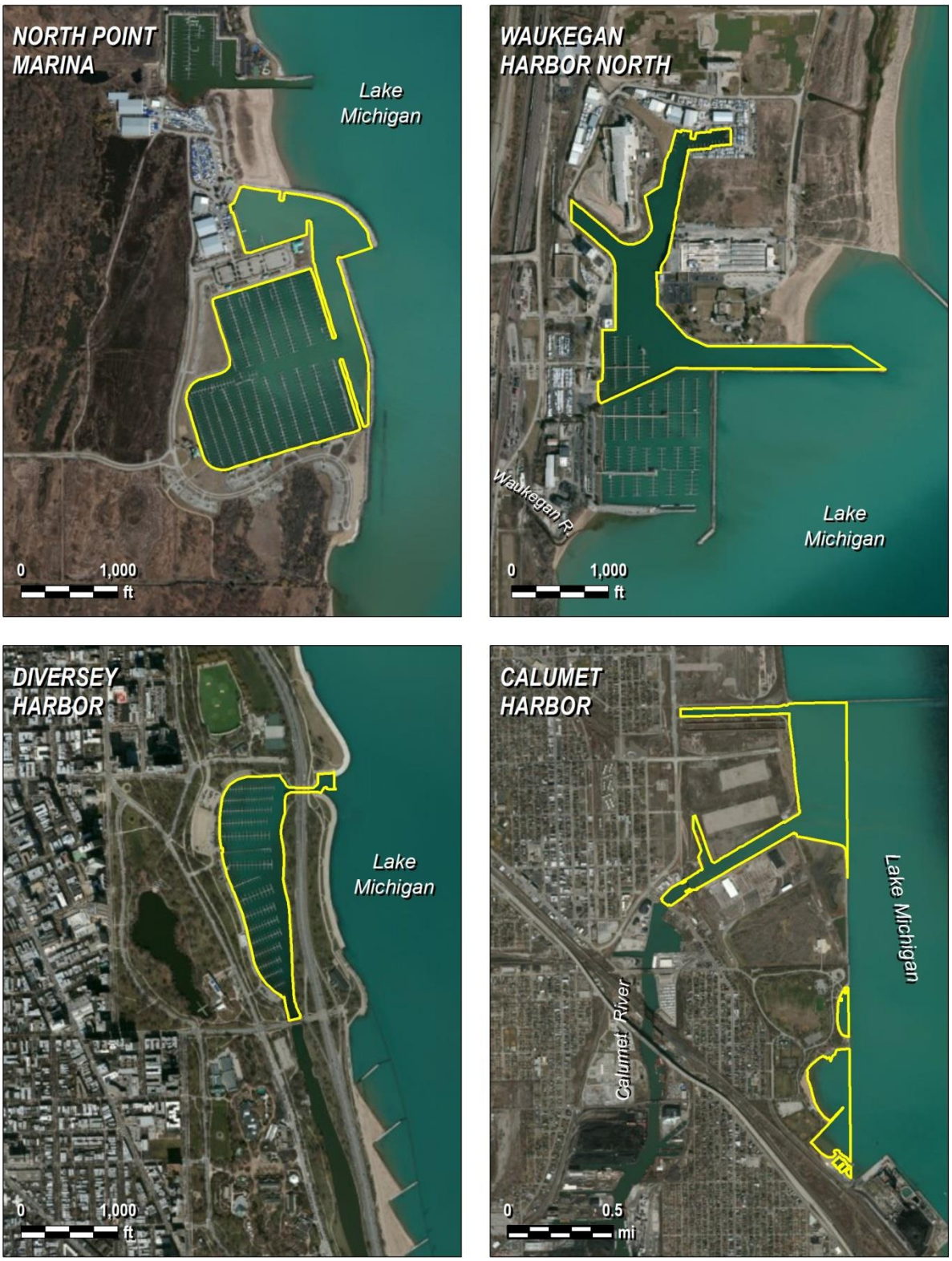
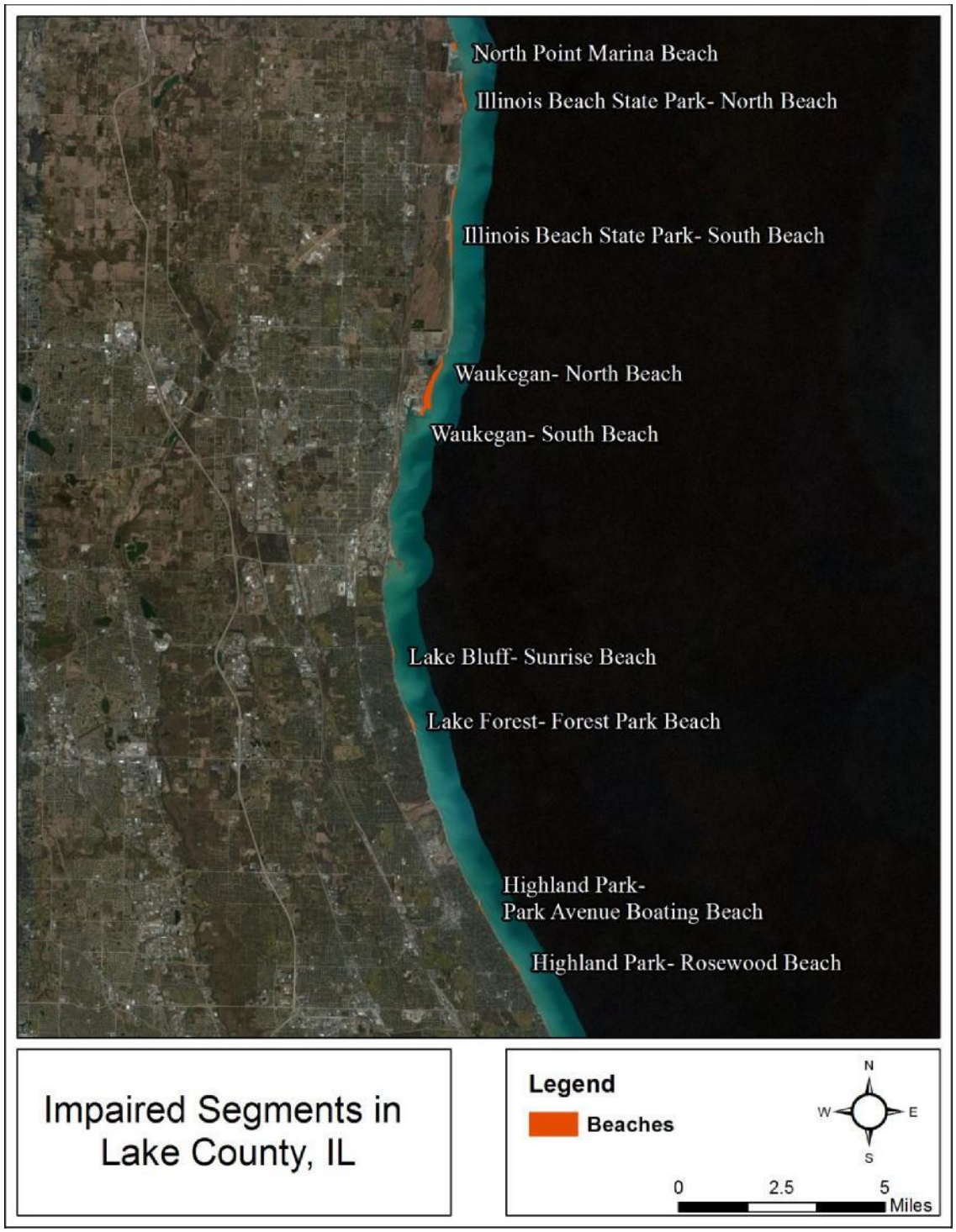
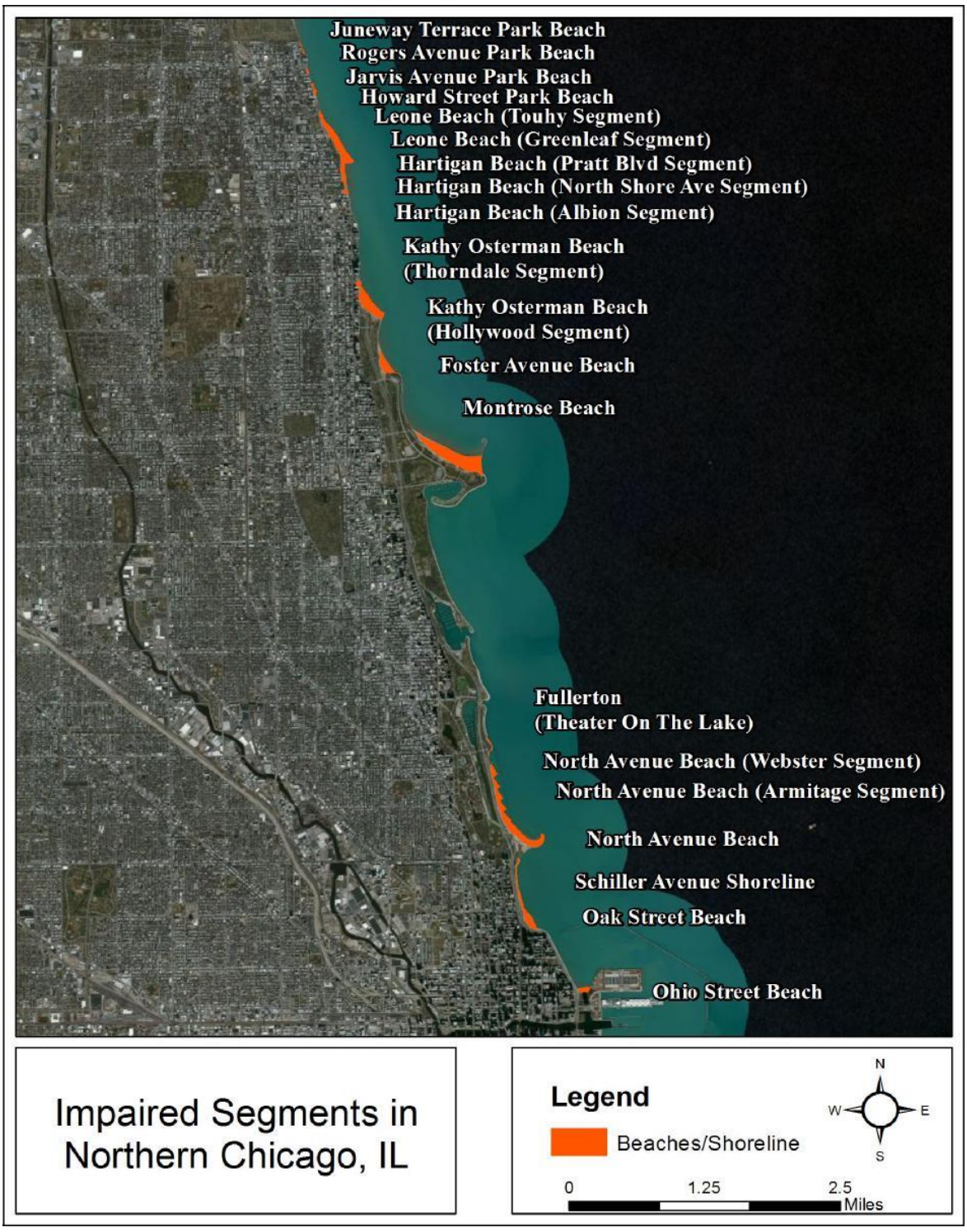
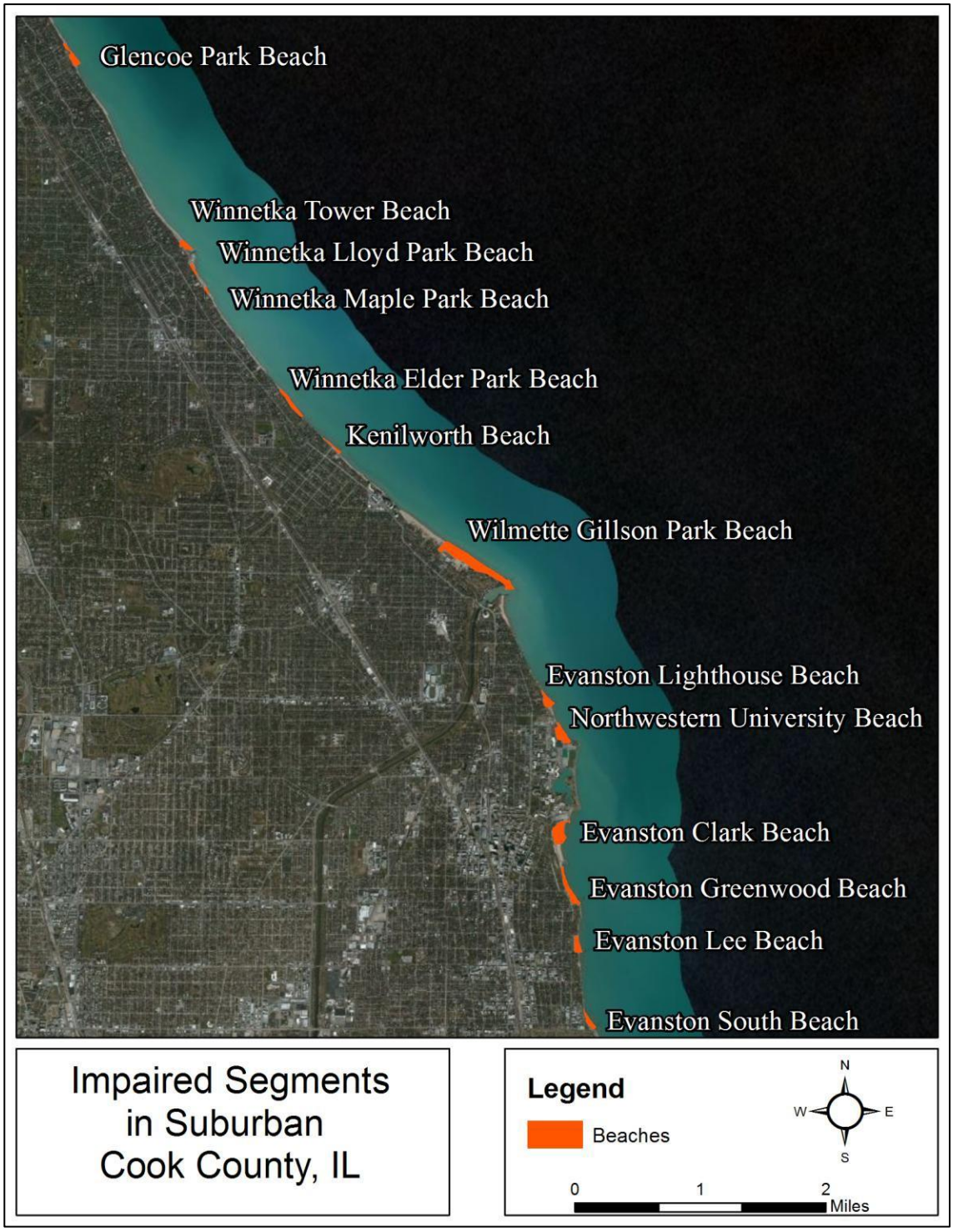


Figure 3. Impaired Beach/Shoreline Segments




Juneway Terrace Park Beach
Rogers Avenue Park Beach
Jarvis Avenue Park Beach
Howard Street Park Beach
Leone Beach (Touhy Segment)
Leone Beach (Greenleaf Segment)
Hartigan Beach (Pratt Blvd Segment)
Hartigan Beach (North Shore Ave Segment)
Hartigan Beach (Albion Segment)
Kathy Osterman Beach
(Thorndale Segment)
Kathy Osterman Beach
(Hollywood Segment)
Foster Avenue Beach
Montrose Beach
Fullerton
(Theater On The Lake)
North Avenue Beach (Webster Segment)
North Avenue Beach (Armitage Segment)
North Avenue Beach
Schiller Avenue Shoreline
Oak Street Beach
Ohio Street Beach
Impaired Segments in
Northern Chicago, IL
Legend
Beaches/Shoreline
N
W
E
S
0
1.25
2.5
Miles


Glencoe Park Beach
Winnetka Tower Beach
Winnetka Lloyd Park Beach
Winnetka Maple Park Beach
Winnetka Elder Park Beach
Kenilworth Beach
Wilmette Gillson Park Beach
Evanston Lighthouse Beach
Northwestern University Beach
Evanston Clark Beach
Evanston Greenwood Beach
Evanston Lee Beach
Evanston South Beach
Impaired Segments in Suburban Cook County, IL
Legend
Beaches
N
W
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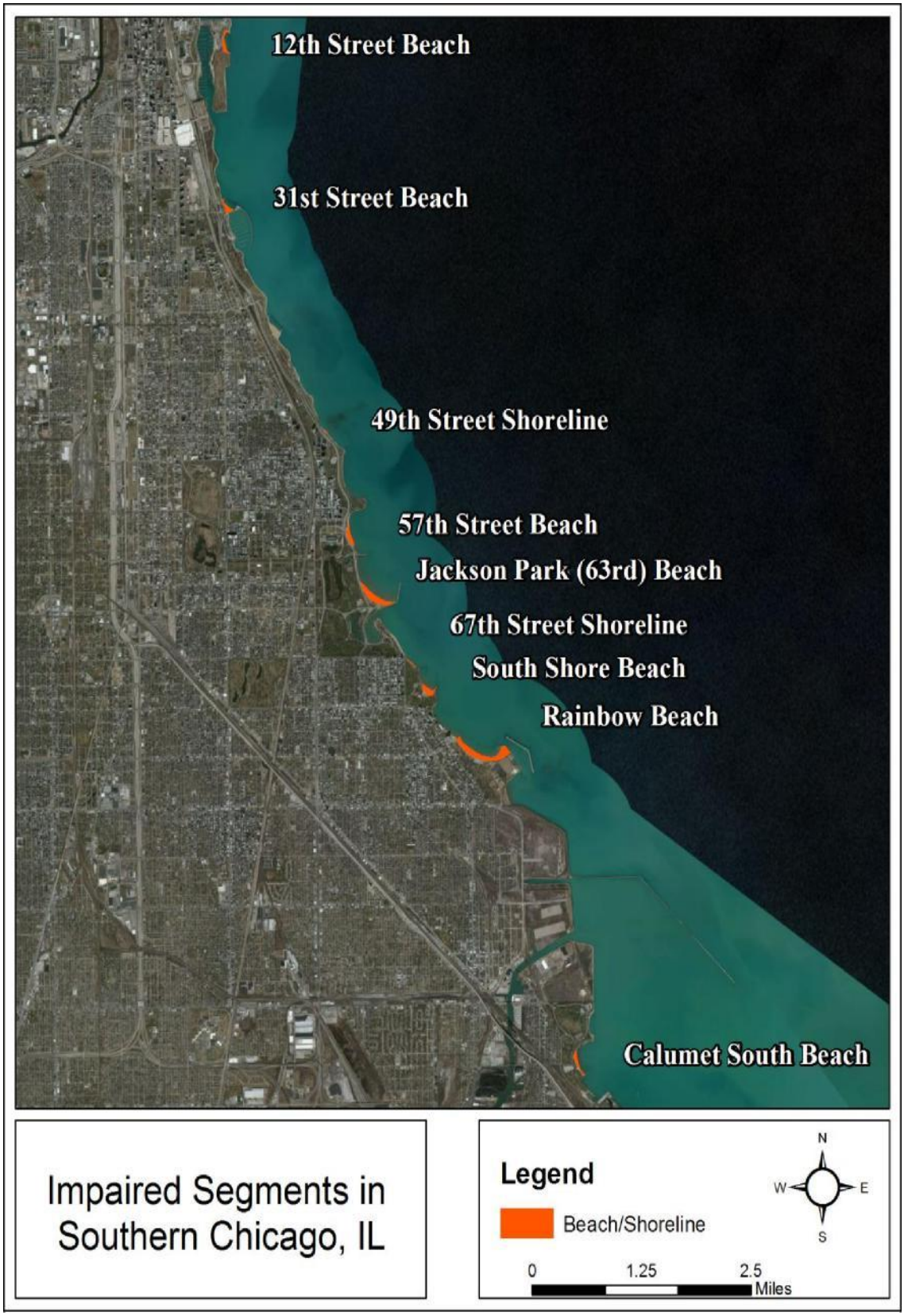
S
0
1
2
Miles


12th Street Beach
31st Street Beach
49th Street Shoreline
57th Street Beach
Jackson Park (63rd) Beach
67th Street Shoreline
South Shore Beach
Rainbow Beach
Calumet South Beach
Impaired Segments in Southern Chicago, IL
Legend
Beach/Shoreline
N
W
E
S
0
1.25
2.5
Miles